ORDER NO. HAD8804121C9

Service Manual

Tuner

QUARTZ Synthesizer
LW/MW/FM Stereo Tuner

ST-X930L

Color

(K).....Black Type

Area

Color	Area
(K)	(E) .....Continental Europe.
(K)	(EH).....Holland.
(K)	(EB).....Belgium.
(K)	(EF) .....France.
(K)	(EK).....United Kingdom.
(K)	(XL) .....Australia.
(K)	(XA).....Asia,Latin America, Middle Near East, Africa & Oceania.
(K)	(PA).....Far East PX.
(K)	(PE) .....European Military.

SPECIFICATIONS

(DIN 45 500)

■ FM TUNER SECTION

Frequency range	87.50 ~ 108.00 MHz (50 kHz-steps)
Sensitivity	1.5 µV (IHF, usable)
S/N 30 dB	1.3 µV (75Ω)
S/N 26 dB	1.2 µV (75Ω)
S/N 20 dB	0.9 µV (75Ω)
IHF 46 dB stereo quieting sensitivity	28 µV / 75Ω
Total harmonic distortion	
MONO	0.15%
STEREO	0.3%
S/N	
MONO	70 dB (78 dB,IHF)
STEREO	65 dB (71 dB,IHF)
Frequency response	20 Hz ~ 15 kHz, +0.5 dB ~ -1.5 dB
Alternate channel selectivity	
±400 kHz	65 dB
Capture ratio	1.0 dB
Image rejection at 98 MHz	46 dB
IF rejection at 98 MHz	70 dB
Spurious response rejection at 98 MHz	70 dB
AM suppression	55 dB
Stereo separation	
1 kHz	40 dB
10 kHz	30 dB
Carrier leak	
19 kHz	-30 dB (-35 dB,IHF)
38 kHz	-45 dB (-50 dB,IHF)
Channel balance (250 Hz ~ 6,300 Hz)	± 1.5 dB
Limiting point	1.2 µV
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminals	75Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	
MW	522 kHz ~ 1611 kHz (9 kHz-steps)
	530 kHz ~ 1620 kHz (10 kHz-steps)
LW	155 kHz ~ 353 kHz (9 kHz-steps)
	153 kHz ~ 351 kHz (-2 kHz shift)
Sensitivity (S/N 20 dB)	
MW	20 µV,300 µV/m
LW	50 µV
Selectivity (± 9 kHz)	
MW (at 999 kHz)	55 dB
LW (at 254 kHz)	55 dB
Image rejection	
MW (at 999 kHz)	40 dB
LW (at 254 kHz)	40 dB
IF rejection	
MW (at 999 kHz)	60 dB
LW (at 254 kHz)	60 dB

■ GENERAL

Output voltage	0.3V (0.6V,IHF)
Power consumption	9W
Power supply	
For United Kingdom and Australia	AC 50 Hz/60 Hz,240V
For continental Europe	AC 50 Hz/60 Hz,220V
For others	AC 50 Hz/60 Hz,110V/127V/220V/240V
Dimensions (W x H x D)	360 x 64.5 x 288 mm (14-3/16" x 2-17/32" x 11-11/32")
Weight	2.0kg (4.4 lb.)

Notes:

1.Specifications are subject to change without notice. Weight and dimensions are approximate.

2.Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

Technics

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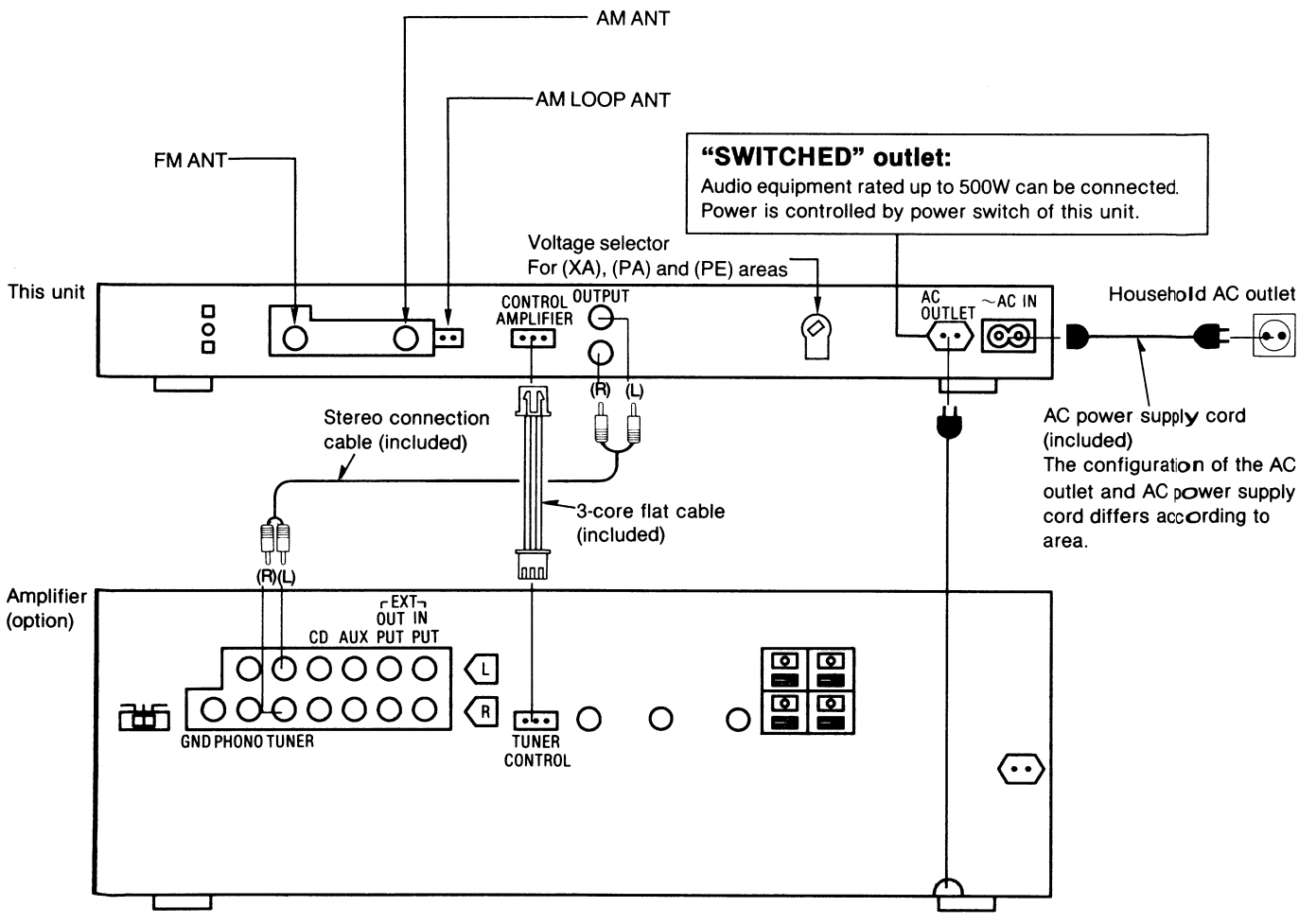
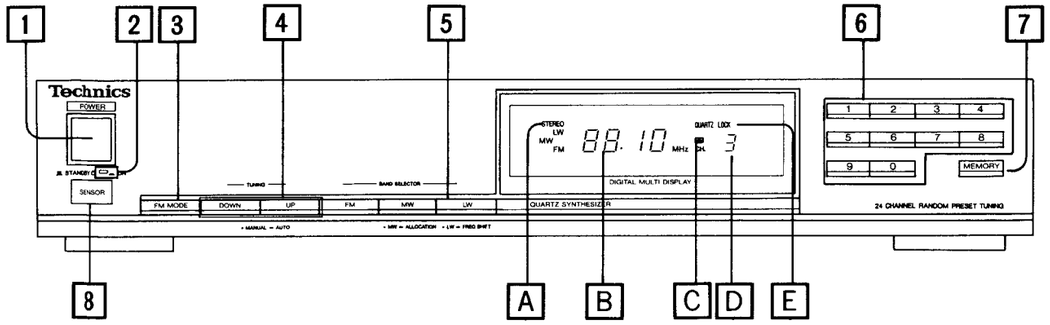
■ CONNECTION



■ LOCATION OF CONTROLS

The indication AM used here includes both MW and LW.



Control section

1 Power "STANDBY ⏻/ON" switch (POWER "STANDBY ⏻/ON")

This switch switches ON and OFF the secondary circuit power only. The unit is in the "STANDBY" condition when this switch is set to the "STANDBY ⏻ " position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

2 "STANDBY ⏻" indicator

This indicator will illuminate when the unit is switched to the standby condition by the power "STANDBY ⏻/ON" switch on the unit or the ON/OFF switch on the remote-control unit.

3 FM mode selector (FM MODE)

This unit automatically switches to the stereo mode when a stereo broadcast is received. Press this selector to listen in the monaural mode. The FM stereo indicator will not illuminate in the monaural mode.

4 Tuning buttons (TUNING)

If the button is pressed momentarily and then released, the frequency will change at intervals of 0.05 MHz for FM and 9 kHz (or 10 kHz) for AM.

5 Band selectors (BAND SELECTOR)

FM:
Press this button to listen to an FM broadcast.
MW:
Press this button to listen to an MW broadcast.
ALLOCATION:
When the MW button is pressed for about 4 seconds, the MW frequency step will change to 10 kHz per step.
(This step is set to 9 kHz before shipment.)
In order to return to the original frequency indication, press this button for about 4 seconds again.
LW:
Press this button to listen to an LW broadcast.
FREQ SHIFT:
When the LW button is pressed for about 4 seconds during reception of an LW broadcast, the LW frequency will decrease by 2 kHz.
In order to return to the original frequency indication, press this button for about 4 seconds again.

6 Preset-tuning buttons (1 ~ 0) (24 CHANNEL RANDOM PRESET TUNING)

These buttons are used to preset FM and AM broadcast frequencies into the memory of this unit, and are also pressed to select the desired preset frequencies.

7 Memory button (MEMORY)

8 Remote-control signal receptor (SENSOR)

Display section

A FM stereo indicator (STEREO)

This indicator automatically illuminates when an FM stereo broadcast is being received.
Note:
It will not illuminate if the FM mode selector is set to the monaural mode.

B Digital frequency display

C Memory indicator (M)

D Channel display

E Quartz-lock indicator (QUARTZ LOCK)

This indicator illuminates when tuned precisely to an FM or AM station.

(EUR64761)...For Australia

●REMOTE CONTROL TRANSMITTER (EUR64753)...For Others

For detailed information concerning operation steps, etc., please refer to the appropriate page for each unit and the respective operation instructions.
For this system, you can listen to the tapes or compact discs, etc. by operating the remote-control transmitter without pressing the amplifier's input selector.

Note: The control panel of the remote-control transmitter may be covered by a clear plastic protective sheet. This sheet may be removed if desired.

Before beginning

Make sure that the power "STANDBY ⏻/ON" switch of the tuner is set to the "ON" position.
Note that there is no need to press this button if the tuner's power is ON. (If it is pressed, the tuner will be switched to standby mode.)

While listening to music

Press this button to temporarily reduce the volume level. The volume level is attenuated by 20 dB. (approx. 1/10)
Press once again to return to the previous volume level.

Adjust the volume level.

Listening to phono discs

START — Press to start the play.

TURNTABLE ■STOP — Press to stop the play.

Listening to compact discs

►PLAY/❚❚PAUSE — Press to start the play.

►PLAY/❚❚PAUSE — Press to temporarily stop the play. Press to resume the play.

CD ■STOP — Press to stop the play.

To search for a certain track (skip play)

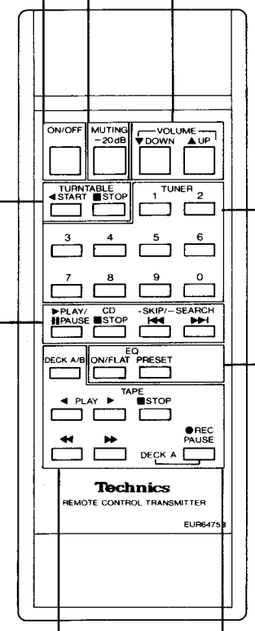
SKIP–SEARCH ⏮ — Press momentarily to search for the track now playing. Repeat this step the necessary number of times to search for a previous track.

SKIP–SEARCH ⏭ — Press momentarily to search for the next track.

To search for a desired position (search play)

SKIP–SEARCH ⏮ — To move backward quickly on the disc, press and hold, and then release at the desired position.

SKIP–SEARCH ⏭ — To move forward quickly on the disc, press and hold, and then release at the desired position.



Listening to radio broadcasts

1 – 0

Press to listen to the desired preset "channel".

To listen to sound corrected by an equalizer

ON/FLAT — Press to switch the equalizer correction ON. Press once again to switch it OFF.

PRESET — Press to retrive the memorized curve. (For Technics graphic equalizer with the preset memory function only.)

Recording ("DECK A" only)

1 DECK A/B — Press to select the "DECK A".

2 ●REC PAUSE — Press. (Recording stand-by mode)

3 Begin the sound source.

4 ◄PLAY PLAY► — Press to select the tape side for recording. (Recording will begin.)

TAPE ■STOP — Press to stop the recording.

●REC PAUSE — Press to temporarily stop recording. To begin recording once again, press the playback button.

Listening to tapes

1 DECK A/B — Press to select the deck ("DECK A" or "DECK B") operated.

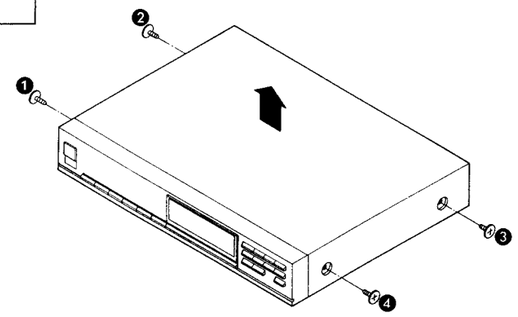
2 ◄PLAY PLAY► — ▶:For forward side ◀:For reverse side. Press to select the tape side for playing back. (Playback will start.)

TAPE ■STOP — Press to stop the playback.

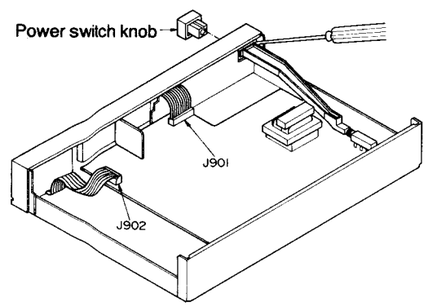
⏪ ⏩ — Press to advance or rewind the tape.

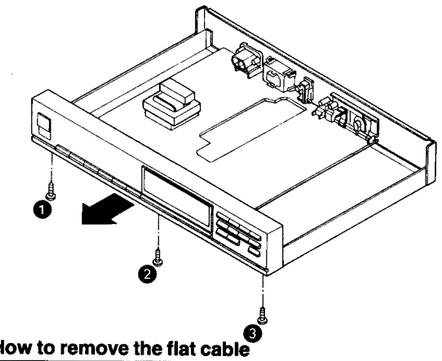
■ DISASSEMBLY INSTRUCTIONS

Ref. No. 1	How to remove the cabinet
Procedure 1	•Remove the 4 screws (❶~❹).



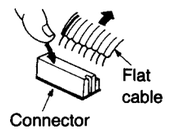
Ref. No. 2	How to remove the front panel
Procedure 1→2	1. Remove the power switch knob by pushing it from behind the front panel. 2. Remove the flat cable (J901, J902). 3. Remove the 3 screws (❶~❸). 4. Remove the front panel in the direction of the arrow.



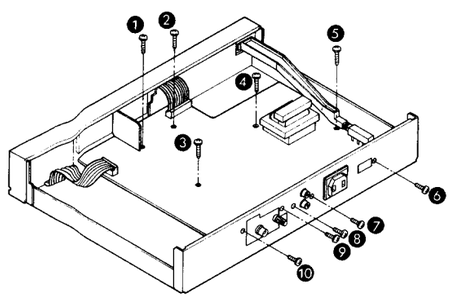


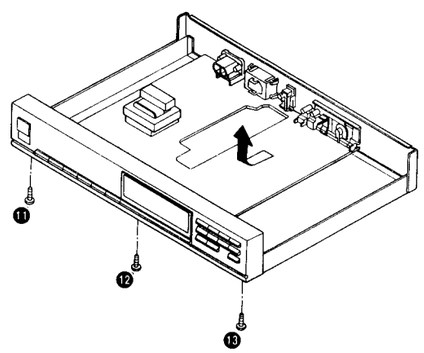
How to remove the flat cable

Pull out the flat cable while pressing the connector.

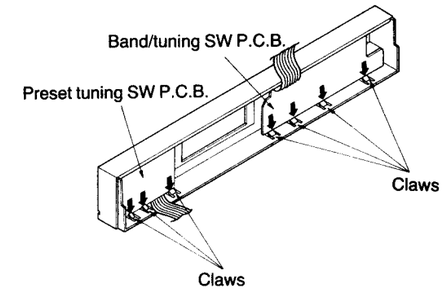


Ref. No. 3	How to remove the main P.C.B.
Procedure 1→3	1. Remove the 10 screws (❶~❿). 2. Remove the 3 screws (⓫~⓭). 3. Slightly pull the front panel toward you and remove the main P.C.B.

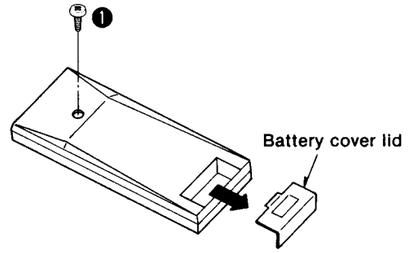


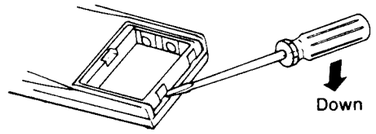


Ref. No. 4	How to remove the preset tuning SW P.C.B. and band/tuning SW P.C.B.
Procedure 1→2→4	1. Push the 3 claws and remove the preset tuning SW P.C.B. 2. Push the 4 claws and band/tuning SW P.C.B.



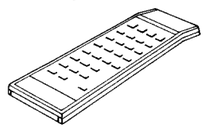
Ref. No. 5	How to remove the remote control
Procedure 5	1. Remove the battery cover lid. 2. Remove the one screw (❶). 3. Insert a screwdriver blade between the upper and lower covers inside the battery compartment and them slowly loosen the bottom cover.



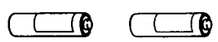


■ ACCESSORIES

- Remote-control transmitter 1
  (EUR64761)...For (XL) area only
  (EUR64753)...For others

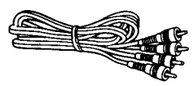


- Batteries 2
  (UM-4NE)

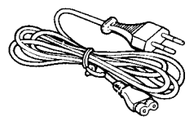


- 3-core flat cable 1
  (SWKTX930E)

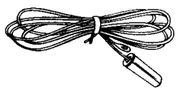
- Stereo connection cable 1
  (SJPK2203-1)



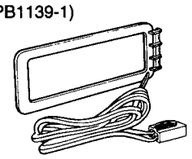
- AC power supply cord 1
  (SFDAC05G02)



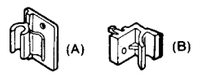
- FM indoor antenna 1
  (SSA269)



- AM loop antenna 1
  (SPB1139-1)

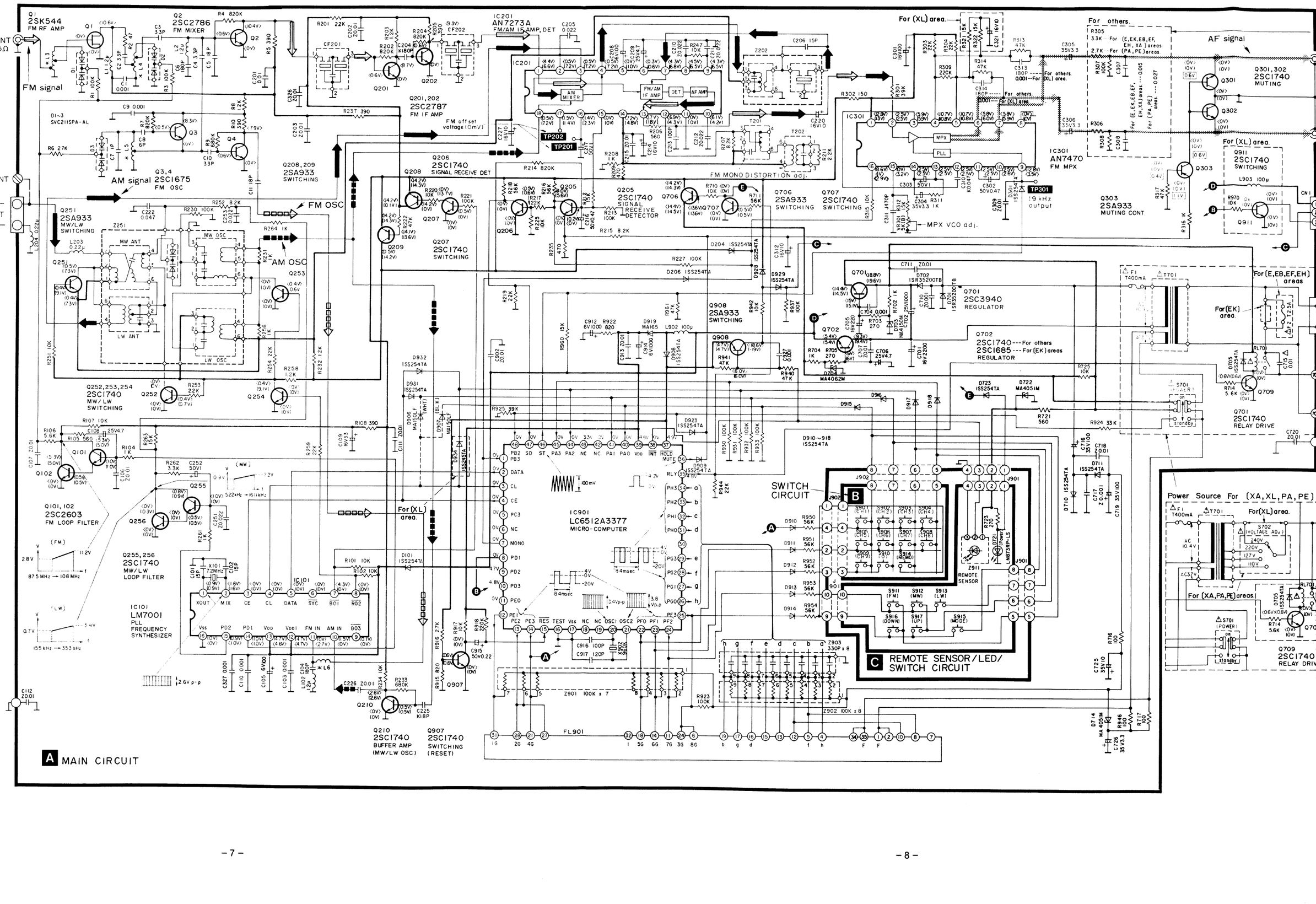


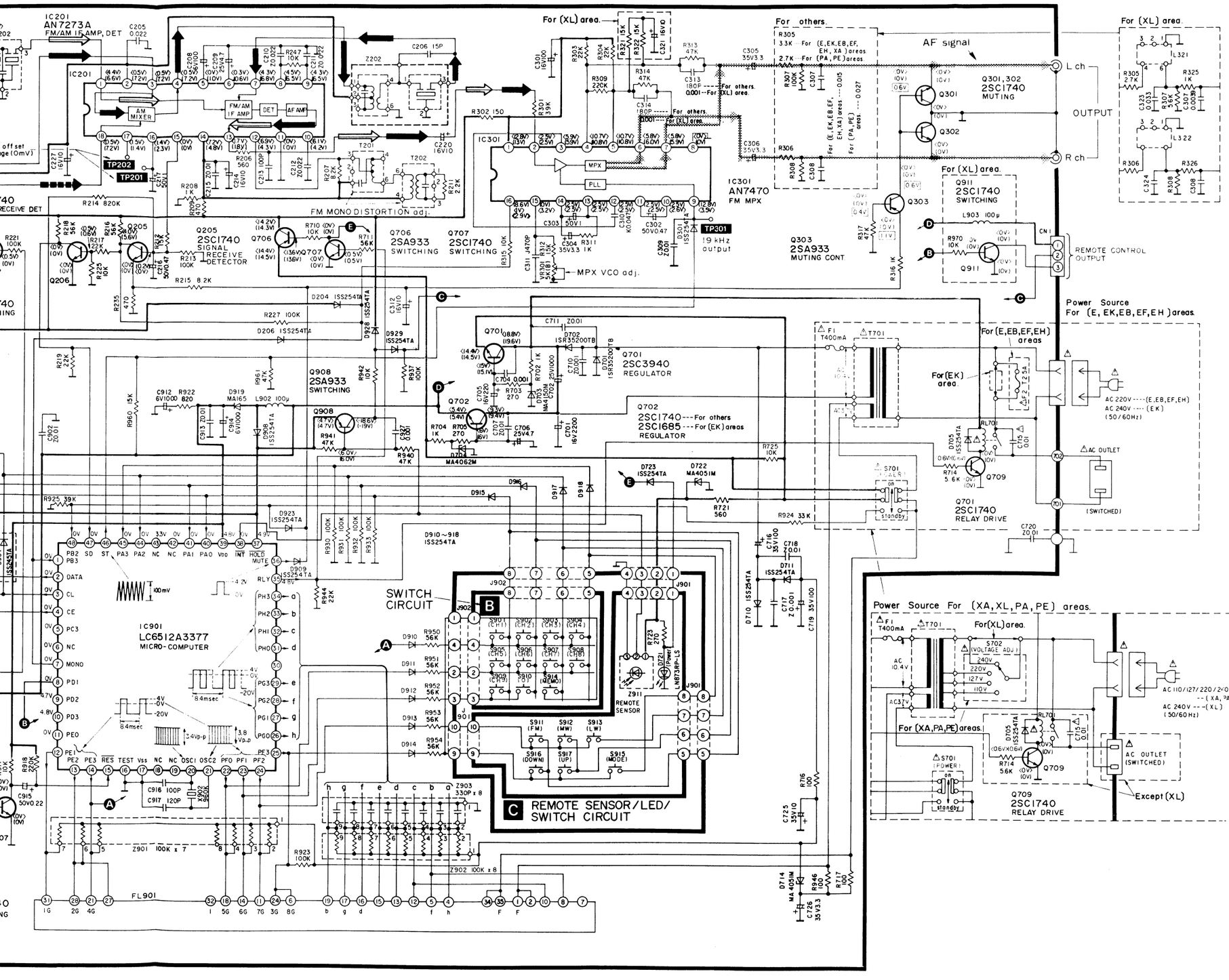
- AM antenna holders 2
  (SMA233-1M)



- Screws 2
  (XTN3+10AFZ)

Note: Configuration of AC power supply cord and FM indoor antenna differs according to area.


A MAIN CIRCUIT
B SWITCH CIRCUIT
C REMOTE SENSOR/LED/ SWITCH CIRCUIT
Power Source For (XA,XL,PA,PE)
FM ANT 75Ω
FM signal
AM ANT
AM LOOP ANT
AM signal 2SC1675 FM OSC
FM OSC
AM OSC
Q1 2SK544 FM RF AMP
Q2 2SC2786 FM MIXER
Q201 Q202
Q201,202 2SC2787 FM IF AMP
FM offset voltage (0mV)
IC201 AN7273A FM/AM IF AMP, DET
TP202
TP201
FM MONO DISTORTION adj.
Q208,209 2SA933 SWITCHING
Q206 2SC1740 SIGNAL RECEIVE DET
Q207 2SC1740 SWITCHING
Q205 2SC1740 SIGNAL RECEIVE DETECTOR
Q251 2SA933 MW/LW SWITCHING
Q252,253,254 2SC1740 MW/LW SWITCHING
Q255,256 2SC1740 MW/LW LOOP FILTER
Q101,102 2SC2603 FM LOOP FILTER
IC101 LM7001 PLL FREQUENCY SYNTHESIZER
IC901 LC6512A3377 MICRO-COMPUTER
Q210 2SC1740 BUFFER AMP (MW/LW OSC)
Q907 2SC1740 SWITCHING (RESET)
For (XL) area.
For others.
AF signal
IC301 AN7470 FM MPX
MPX VCO adj.
TP301 19 kHz output
Q301,302 2SC1740 MUTING
Q303 2SA933 MUTING CONT
Q911 2SC1740 SWITCHING
Q706 2SA933 SWITCHING
Q707 2SC1740 SWITCHING
Q908 2SA933 SWITCHING
Q701 2SC3940 REGULATOR
Q702 2SC1740---For others 2SC1685---For (EK) areas REGULATOR
Q701 2SC1740 RELAY DRIVE
For (E,EB,EF,EH) areas
For (EK) area.
For (XA,PA,PE) areas.
FL901
Z901 100K x 7
Z902 100K x 8
Z903 330P x 8
REMOTE SENSOR



■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

Note 1:

- **S701** : Power source switch in **"on"** position.
- **S702** : Voltage selector switch in **"240 V"** position. **(110 V◄►127 V◄►220 V◄►240 V)** For (XA), (PA) and (PE) areas.
- **S901~S910** : Preset tuning switch. **S901: CH1, S902: CH2, S903: CH3, S904: CH4, S905: CH5, S906: CH6, S907: CH7, S908: CH8, S909: CH9, S910: CH0**
- **S911** : FM select switch.
- **S912** : MW select switch.
- **S913** : LW select switch.
- **S914** : Memory set switch. **(manual◄►auto memory)**
- **S915** : FM mode switch.
- **S916** : Tuning **(down)** switch. [down: tuning to lower frequency]
- **S917** : Tuning **(up)** switch. [up: tuning to higher frequency]

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
  - *Figures in ( ) stand for DC voltage in MW signal reception mode.
  - *Figures in [ ] stand for DC voltage in LW signal reception mode.
- ——— Positive voltage lines
- □□□□▷ FM OSC
- ■■■■▶ AM OSC
- ⇨ AF signal lines
- ⇨ FM signal
- ➡ AM signal
- Important safety notice
  Components identified by △ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

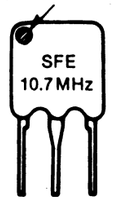
Note 2:

• Use of ceramic filters in pairs

The ceramic filters (CF201, CF202) for FM-IF circuit are available in three ranks. For this circuit, be sure to use the ceramics of the same rank in a pair.

At repairing and replacement, pay close attention to the diodes (D906, D907) for use as different diodes must be used depending on each rank of the ceramic filters.

Color marking
(Red, Black or White)



RANK (Color)	D906	D907	CENTER FREQUENCY
White	○	×	10.65MHz
Red	×	×	10.70MHz
Black	×	○	10.76MHz

Note: ○ mark: Diode is used.
× mark: Diode is not used.

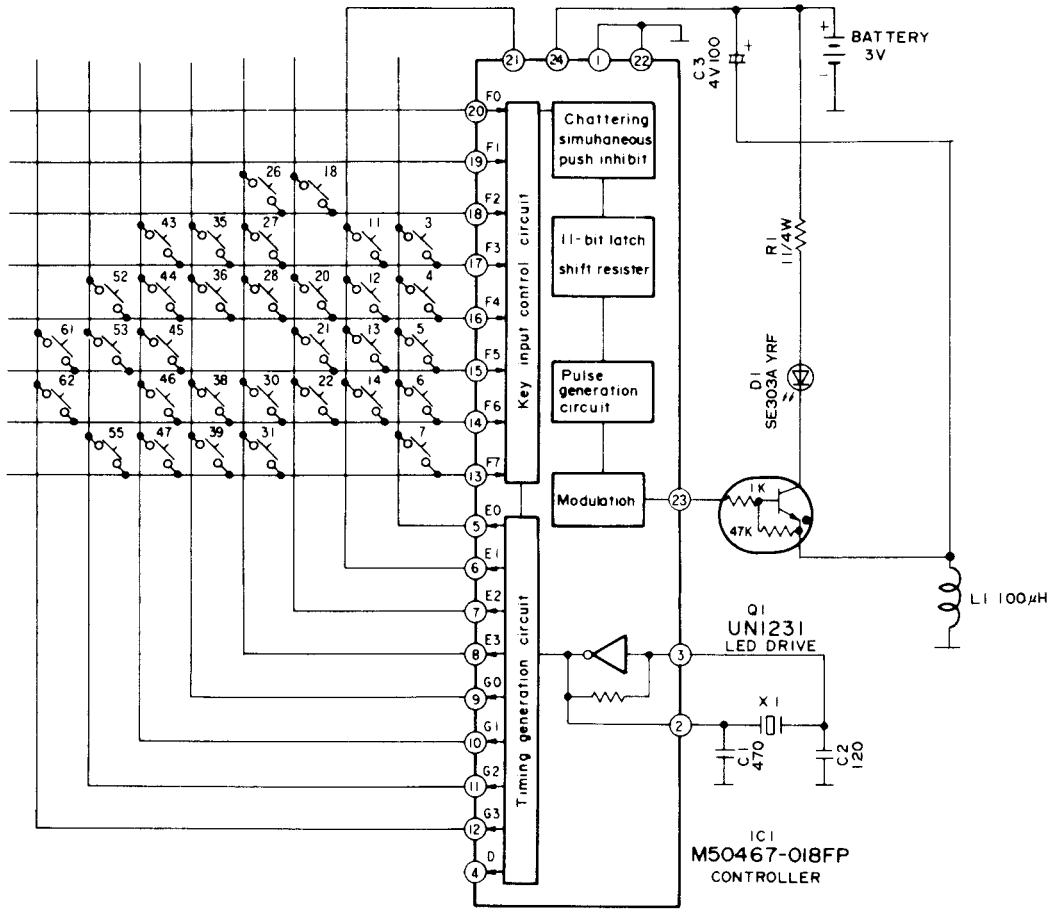
✱ Caution!

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

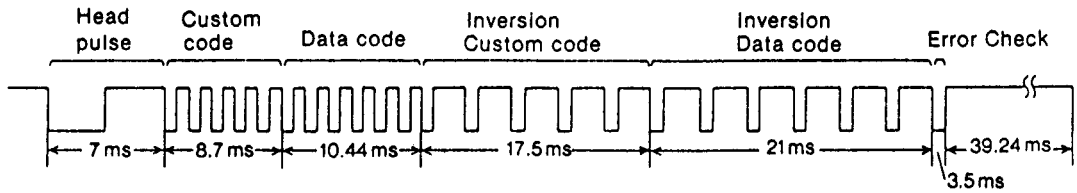
✱ Cover the parts boxes made of plastics with aluminum coil.
✱ Ground the soldering iron.
✱ Put a conductive mat on the work table.
✱ Do not touch the legs of IC or LSI with the fingers directly.

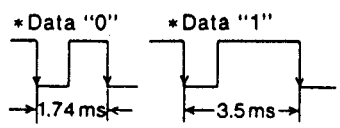
•Remote control unit

Note: Key No. 3, 36 and 45 are for EUR64753 only.



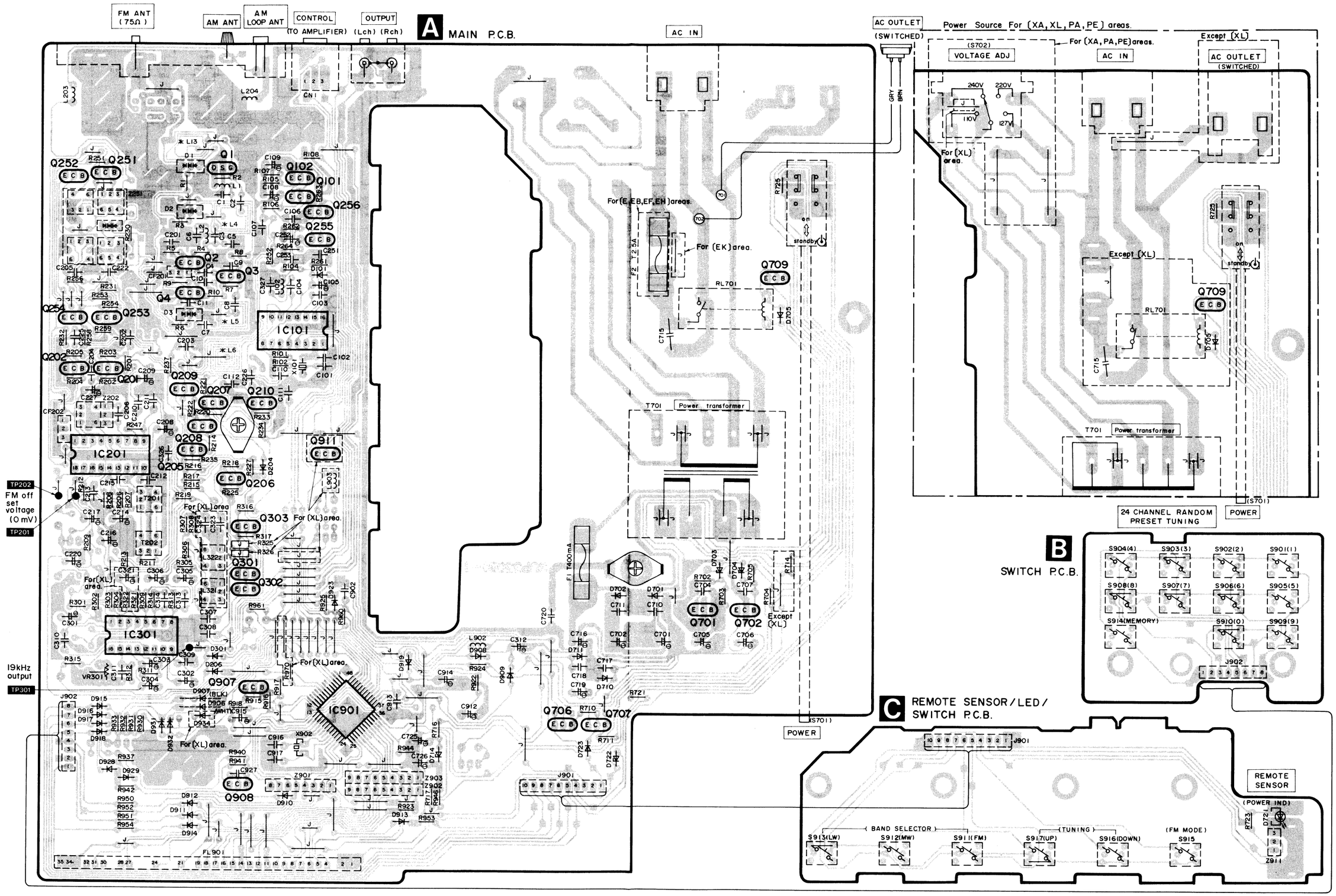
• Remote control data code





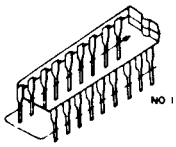
Key No.	Function	Custom code	Data code	Key No.	Function	Custom code	Data code
3	Auto rec mute	01001	000111	30	Tuner 8	01001	010111
4	Deck play ◀	01001	001001	31	Tuner 1	01001	010000
5	Vol. up	01001	100100	35	CD • skip/search	01100	000010
6	Tuner 5	01001	010100	36	Pause	01001	000110
7	Power ON/OFF	01001	100000	38	Tuner 9	01001	011000
11	CD play/pause	01100	001010	39	Tuner 2	01001	010001
12	Deck play ▶	01001	001010	43	CD • skip/search	01100	000011
13	Vol. Down	01001	100101	44	Deck stop	01001	000000
14	Tuner 6	01001	010101	45	※1	01001	110011
18	Turntable start	01001	001100	46	Tuner 0	01001	011001
20	Deck ◀◀	01001	000010	47	Tuner 3	01001	010010
21	Muting	01001	100111	52	Rec Pause	01001	001000
22	Tuner 7	01001	010110	53	Deck A/B	01001	000100
26	Turntable stop	01001	001101	55	Tuner 4	01001	010011
27	CD stop	01100	000000	61	EQ • OF/FLAT	01001	110000
28	Deck ▶▶	01001	000011	62	EQ Preset	01001	110010

■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

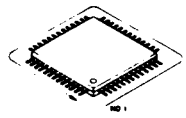


ata code
010111
010000
000010
000110
011000
010001
000011
000000
110011
011001
010010
001000
000100
010011
110000
110010

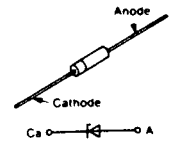
■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



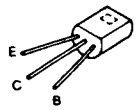
SVIUPC1161C3	16 Pin
LM7001	16 Pin
AN7273B	18 Pin



LC6512A3377	48 pin

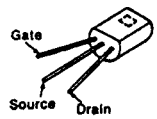


MA4051M
MA4062M
MA4150M

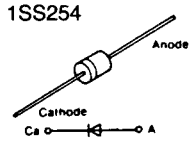


2SC2787L
2SC2786M
2SC1740SQ
2SC1685-QNC
2SA933SQR

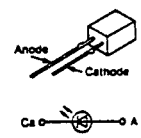
2SK544F-AC



MA165
MA162A
1SS254

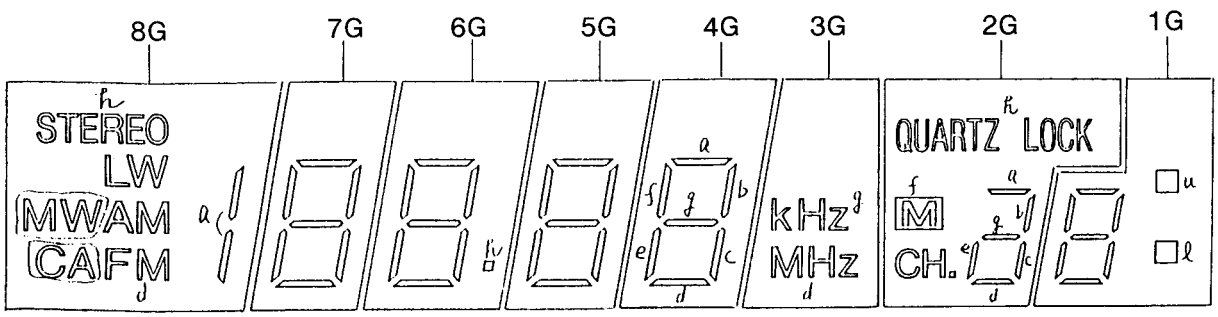


LN273RP



■ DESCRIPTION OF FL PANEL

•GRID ASSIGNMENT

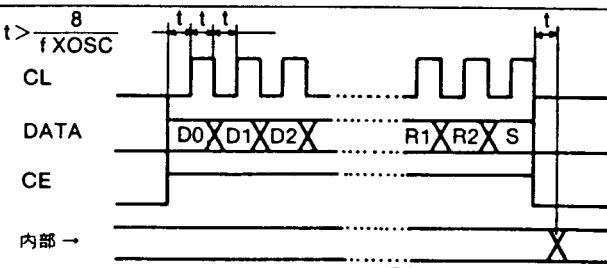


Note: The grid of 3G and 8G are used for external connection.

•PIN CONNECTION

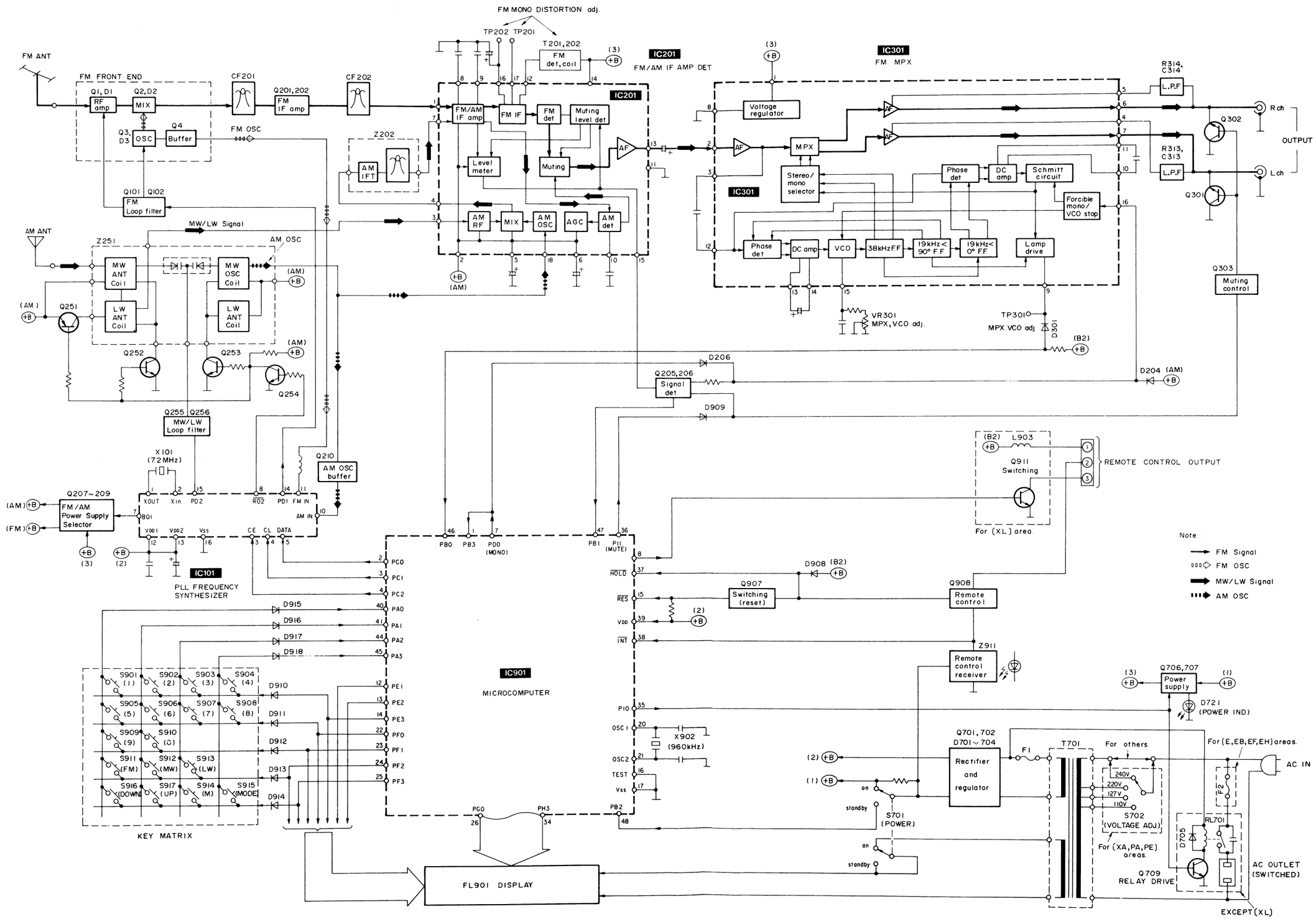
PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
CONNECTION	F1	F1	NP	h	f	8G	AM	MW	CA	LW	7G	c	a	6G	e	d	g	5G	b	NP	4G	NP	NP	3G	NP	NP	CH	2G	NP	u	1G	ℓ	NP	F2	F2

■ FUNCTIONS OF IC TERMINALS (IC901: LC6512A3377)

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
1	INPUT	PB3	Computer drive terminal.
2	OUTPUT	DATA	Data output $t > \frac{8}{f\,XOSC}$  f XOSC: Crystal OSC D0~D13: Divided frequency data R0~R2: Reference frequency data
3		CL	
4		CE	
5	—	PC3	Not used in this unit.
6	—	NC	Not used in this unit.
7	OUTPUT	PD0	Auto/mono changeover terminal. (auto → 0V, mono → 5V)
8	OUTPUT	PD1	Computer drive terminal.
9	—	PD2	Not used in this unit.
10		PD3	
11		PE0	
12 ~ 14 • 22 ~ 25	OUTPUT	PE1 ~ PE3 • PF0 ~ PF3	Digital signal terminal for display. Terminal for key return signal to external key matrix.
15	INPUT	$\overline{RES}$	Reset terminal.
16	—	TEST	Ground terminal.
17		V_{SS}	
18	—	NC	Not used in this unit.
19			
20	INPUT	OSC1	Connecting terminal for crystal oscillator.
21	OUTPUT	OSC2	
26 ~ 29 • 31 ~ 34	OUTPUT	PG0 ~ PG3 • PH0 ~ PH3	Segment signal terminal for display.
30	—	NC	Not used in this unit.
35	OUTPUT	P10	Control signal terminal for relay (RLY701).
36	OUTPUT	P11	Muting signal terminal. (Muting → High level)
37	INPUT	$\overline{HOLD}$	Terminal for power failure detection.
38	INPUT	$\overline{INT}$	Terminal for remote control cord.
39	INPUT	V_{DD}	Power supply terminal of device. Voltage of 5V is supplied during operation of device.
40	INPUT	PA0 ~ PA3	Terminal for key return signal to external key matrix. [KEY MATRIX]
41			
44			
45			
42 • 43	—	NC	Not used in this unit.
46	INPUT	PB0 ~ PB2	Stereo signal terminal.
47			SD signal terminal.
48			Tuner select terminal. (Ground connection)

Pin No.	45	44	41	40
14	CH4	CH3	CH2	CH1
22	CH8	CH7	CH6	CH5
23	—	—	CH0	CH9
24	—	—	AM	FM
25	MODE	MEMORY	UP	DOWN

■ BLOCK DIAGRAM



■ MEASUREMENTS AND ADJUSTMENTS

FM ADJUSTMENT

Control positions and equipment used

- FM signal generator(FM-SG)
- Stereo modulator
- Distortion analyser
- DC electronic voltmeter(EVM)
- Frequency counter
- Choke coil(100μH)
- Resistor(100kΩ)

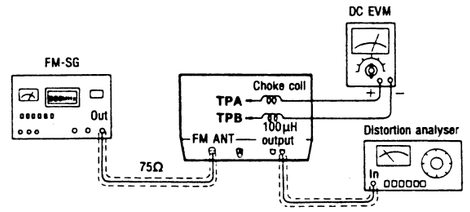
Note: For Z202(AM-IFT) and Z251(AM ANT and OSC coil),they are supplied as adjusted parts. So, do not turn the cores of the parts.

FM MONO DISTORTION ADJUSTMENT

1.Test equipment connection is shown in figure.
2.Set the unit to **"FM"** mode.
3.Set the radio frequency display and signal generator to **100.10MHz**.
4.Adjust the core of **T201** so that the voltage measured in signal mode is **0mV(0±20mV)** in 300mV range.
5.Adjust **T202** so that the distortion factor of L-CH is minimized.
6.Repeat steps 4 and 5.
7.Make sure that the distortion factors of L-CH and R-CH are nearly the same and minimum.

Note: The adjusting screwdriver used should be made of resin.

FM SIGNAL GENERATOR CONDITION
Modulation 100%
Modulation frequency 1kHz
Output level.....66dB



TPA = TP201 , TPB = TP202

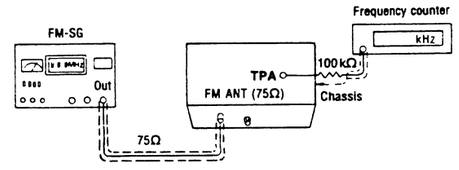
MPX VCO ADJUSTMENT

1.Test equipment connection is shown in figure.
2.Set the unit to **"on/auto"** position.
3.Set the radio frequency display and signal genarator to **100.10MHz**.
4.Adjust **VR301** for **19kHz±30Hz** on frequency counter reading.

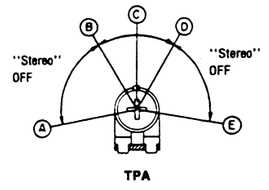
USING ALTERNATE SYSTEM

1.Receive the stereo broadcast.
2.Adjust **VR301** until stereo indicator lights up. Fix the arm of **VR301** as shown in figure.

FM SIGNAL GENERATOR CONDITION
Modulation 100%
Modulation frequency 0kHz
Output level.....66dB



TPA = TP301

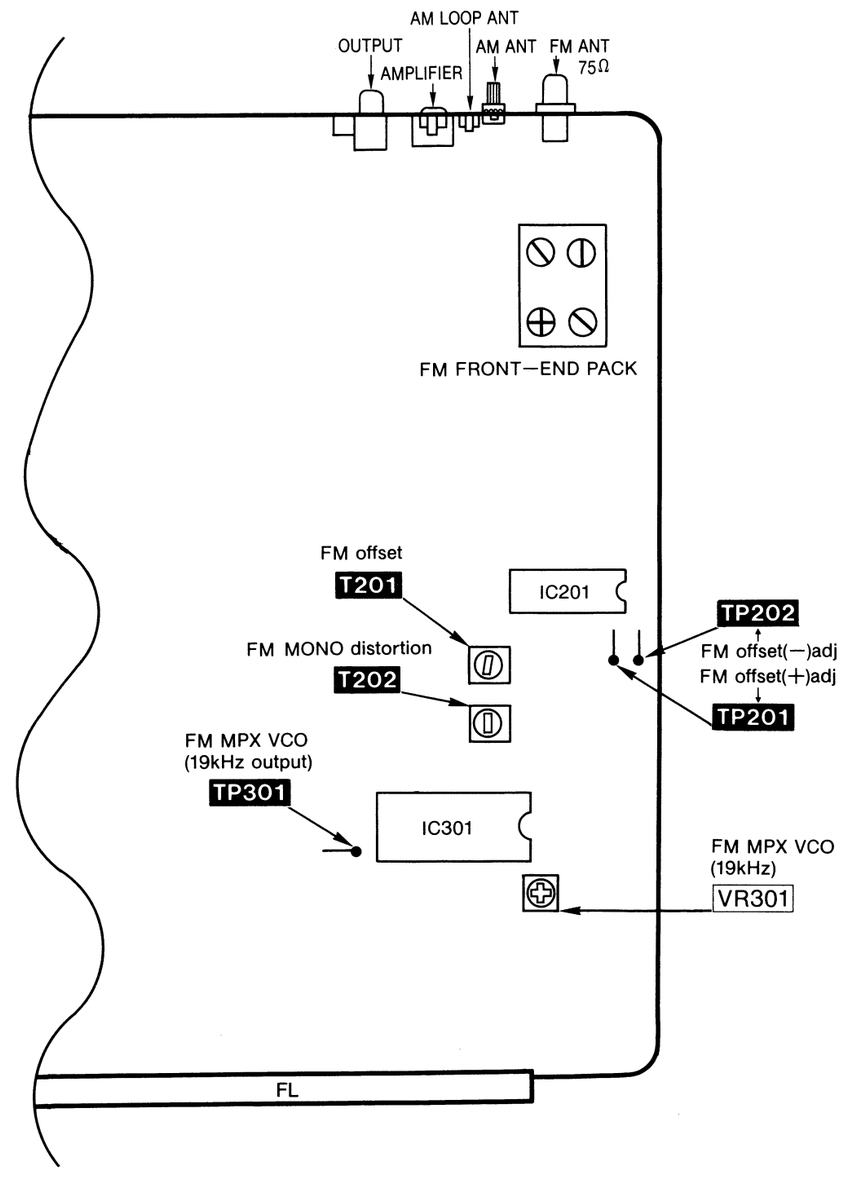


TPA

Ⓐ−Ⓑ,
Ⓓ−Ⓔ..... "Stereo" OFF position
Ⓑ−Ⓓ..... "Stereo" ON position (Indicator lighting)
Ⓒ..... Adjust point of pilot circuit

TPA = VR301

●ADJUSTMENT POINTS



■ REPLACEMENT PARTS LIST

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.
* Remote Control Ass'y:
Supply period for three years from termination of production.
* [F]: Indicates parts that are supplied by PFS. (Panasonic France S.A.Longwy division)

●ELECTRICAL PART LIST

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC101	LM7001	I.C. PLL
IC201	AN7273B	I.C. DET
IC301	SVIUPC1161C3	I.C., FM MPX
IC901	LC6512A3377	I.C. MICRO COM
TRANSISTORS		
Q1	2SK544F-AC	TRANSISTOR
Q2	2SC2786M	TRANSISTOR
Q3	2SC1675L1	TRANSISTOR
Q4	2SC1675L1	TRANSISTOR
Q101	2SC2603EFG	TRANSISTOR
Q102	2SC2603EFG	TRANSISTOR
Q201	2SC2787L	TRANSISTOR
Q202	2SC2787L	TRANSISTOR
Q205	2SC1740SQ	TRANSISTOR
Q206	2SC1740SQ	TRANSISTOR
Q207	2SC1740SQ	TRANSISTOR
Q208	2SA933SQR	TRANSISTOR
Q209	2SA933SQR	TRANSISTOR
Q210	2SC1740SQ	TRANSISTOR
Q251	2SA933SQR	TRANSISTOR
Q252	2SC1740SQ	TRANSISTOR
Q253	2SC1740SQ	TRANSISTOR
Q254	2SC1740SQ	TRANSISTOR
Q255	2SC1740SQ	TRANSISTOR
Q256	2SC1740SQ	TRANSISTOR
Q301	2SC1740SQ	TRANSISTOR
Q302	2SC1740SQ	TRANSISTOR
Q303	2SA933SQR	TRANSISTOR
Q701	2SC3940AQSTA	TRANSISTOR
Q702	2SC1740SQ	TRANSISTOR
Q706	2SA933SQR	TRANSISTOR
Q707	2SC1740SQ	TRANSISTOR
Q709	2SC1740SQ	TRANSISTOR
(E, EB, EF, EH) (PA, PE, XA)		
Q907	2SC1740SQ	TRANSISTOR
Q908	2SA933SQR	TRANSISTOR
Q911 (XL)	2SC1740SQ	TRANSISTOR
DIODES		
D101	MA165	DIODE
D204	MA165	DIODE
D206	MA165	DIODE
D301	MA165	DIODE
D701 ⚠	SVD1SR35200A	RECTIFIER
D702 ⚠	SVD1SR35200A	RECTIFIER
D703	MA4150M	DIODE
D704	MA4062-M	DIODE
D705 (E, EB, EF, EH) (PA, PE, XA)	MA165	DIODE
D710	MA165	DIODE
D711	MA165	DIODE
D714	MA4051-M	DIODE
D721	LN873RP-LS	DIODE
D722	MA4051-M	DIODE
D723	MA165	DIODE
D906	MA162A	DIODE
D907	MA162A	DIODE
D908	MA165	DIODE
D909	MA165	DIODE
D910	MA165	DIODE
D911	MA165	DIODE
D912	MA165	DIODE
D913	MA165	DIODE
D914	MA165	DIODE
D915	MA165	DIODE
D916	MA165	DIODE
D917	MA165	DIODE
D918	MA165	DIODE
D919	MA165	DIODE
D923	MA165	DIODE
D928	MA165	DIODE
D929	MA165	DIODE
D931	MA165	DIODE
D932	MA165	DIODE
D934 (XL)	MA165	DIODE
VARIABLE RESISTORS		
VR301	EVND4AA00B53	V.R
VARIABLE CAPACITORS		
D1	SVC211SPA-AL	VARICAP
D2	SVC211SPA-AL	VARICAP
D3	SVC211SPA-AL	VARICAP
COILS AND TRANSFORMERS		
L1	RLQZP1R2MT-Y	COIL
L2	RLQZP1R2MT-Y	COIL
L102	RLQZP1R2MT-Y	COIL
L203	ELEPKR22MA	COIL
L204	ELEPKR22MA	COIL
L321 (XL)	SLM1B9-P	MPX COIL
L322 (XL)	SLM1B9-P	MPX COIL
L902	RLQZP101KT-Y	COIL
L903 (XL)	RLQZP101KT-Y	COIL
T201	SLI4B511-Z	I.F.TRANSFORMER
T202	SLI4B513-Z	I.F.TRANSFORMER
T701 ⚠ (E, EB, EF, EH)	SLT5K259-K	POWER TRANSFORMER
T701 ⚠ (XL)	SLT5K260-K	POWER TRANSFORMER
T701 ⚠ (PA, PE, XA)	SLT5K261-K	POWER TRANSFORMER
Z202	SLI7Z101-T	I.F.TRANSFORMER
Z251	SLA6Z1-T	COIL
COMPONENT COMBINATIONS		
Z901	EXBF8E104J	COMBINATION
Z902	EXBF9E104J	COMBINATION
Z903	EXFP8331MW	COMBINATION
Z911	GP1U509M	DIODE, REMOTE SENSOR
FILTERS		
X101	SVQ49U722-D	CRYSTAL OSCILLATOR
X902	EF0A960K04A	CRYSTAL OSCILLATOR
OSCILLATORS		
CF201	SVFE107MS8A	CERAMIC FILTER (RED)
CF201	SVFE107MS8D	CERAMIC FILTER (BLACK)
CF201	SVFE107MS8E	CERAMIC FILTER (WHITE)
CF202	SVFE107MS8A	CERAMIC FILTER (RED)
CF202	SVFE107MS8D	CERAMIC FILTER (BLACK)
CF202	SVFE107MS8E	CERAMIC FILTER (WHITE)
DISPLAYS		
FL901	SAD8MT42ZYK	DISPLAY TUBE
FUSES		
F1 ⚠	XBA2C04TB0	FUSE, T0.4A250V

Ref. No.	Part No.	Description
SWITCHES		
S701 ⚠	SSH1196-1	SW, POWER
S702 ⚠ (PA, PE, XA)	SSR187-1	SW, VOLTAGE SEL
S901	EVQQTG05R	SWITCH
S902	EVQQTG05R	SWITCH
S903	EVQQTG05R	SWITCH
S904	EVQQTG05R	SWITCH
S905	EVQQTG05R	SWITCH
S906	EVQQTG05R	SWITCH
S907	EVQQTG05R	SWITCH
S908	EVQQTG05R	SWITCH
S909	EVQQTG05R	SWITCH
S910	EVQQTG05R	SWITCH
S911	EVQQTG05R	SWITCH
S912	EVQQTG05R	SWITCH
S913	EVQQTG05R	SWITCH
S914	EVQQTG05R	SWITCH
S915	EVQQTG05R	SWITCH
S916	EVQQTG05R	SWITCH
S917	EVQQTG05R	SWITCH
RELAYS		
RL701	SSY138	RELAY

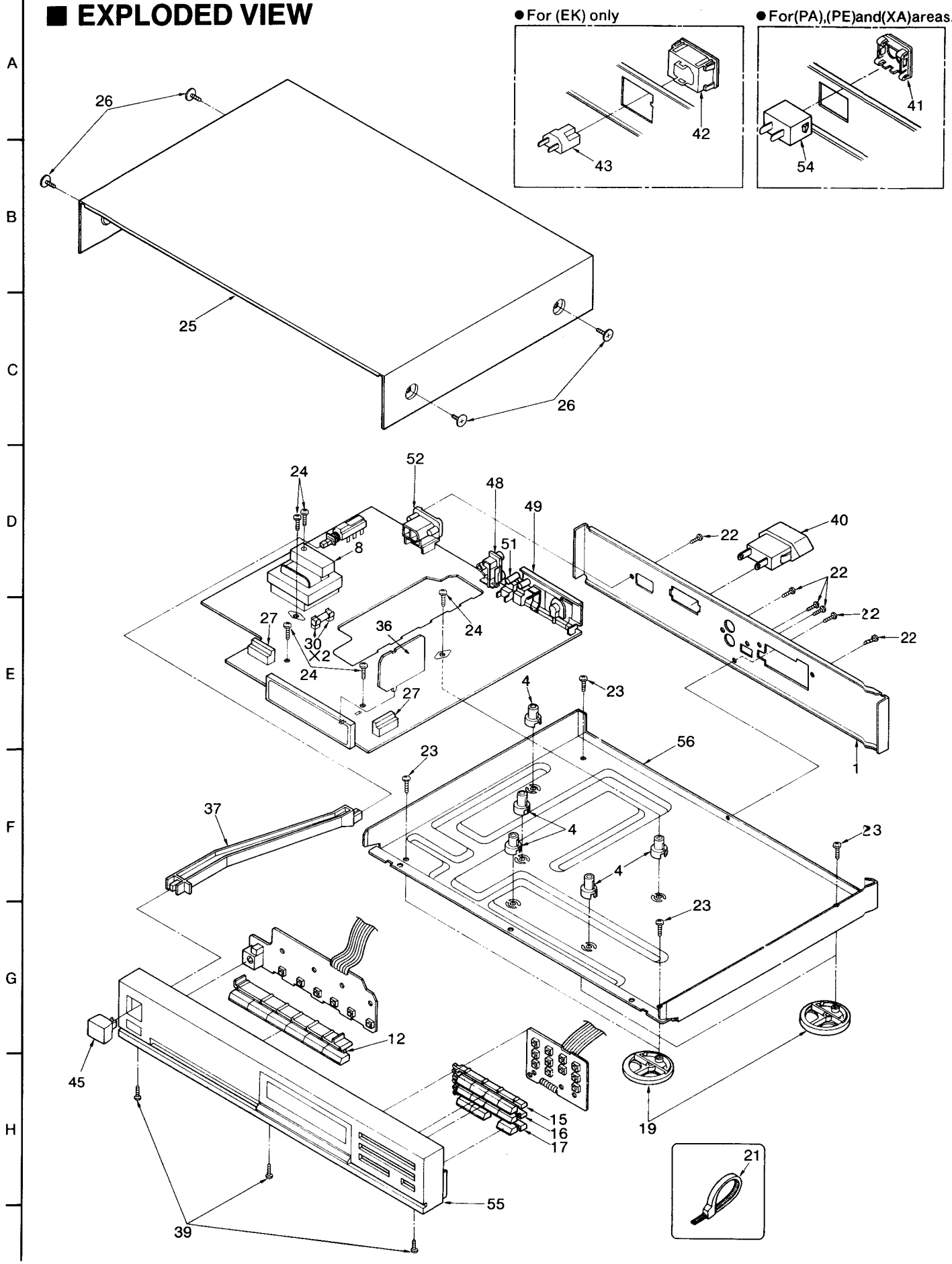
●PACKING PARTS LIST

Ref. No.	Part No.	Description
PACKING MATERIAL		
P1 (EK, E, EB, EH) (XA, XL, PA) (PE)	SPG6312	PACKING CASE
P1 (EF)	SPG6313	PACKING CASE Ⓕ
P2	SPS5169	PAD
P3	SPS5170	PAD
P4	SPP740	PROTECTION COVER
ACCESSORIES		
A1 ⚠ (EK)	SFDAC05G02	POWER CORD
A2	SSA269	FM ANTENNA
A2	SSA270	ANTENNA
A3 (EF)	SQFTX930L-EF	INSTRUCTION BOOK Ⓕ
A3 (EK)	SQF13274	INSTRUCTION BOOK
A3 (E, EB, EH)	SQF13276	INSTRUCTION BOOK
A3 (XA)	SQF13277	INSTRUCTION BOOK
A3 (XL)	SQF13280	INSTRUCTION BOOK
A3 (PA, PE)	SQF13282	INSTRUCTION BOOK
A4	SJPK2203-1	CORD
A5 ⚠	SJP9009	PLUG
A5	SMA231M	BRACKET
A6 ⚠	RJP120ZBS-H	AC PLUG ADAPTOR
A6	SMA233-1M	HOLDER
A7	SPB1139-1	AM LOOP ANTENNA
A8	SPP740	PROTECTION COVER
A8	XTN3+10AFZ	SCREW
A9	UM-4NE	BATTERY
A10	SWKTX930E	LEAD WIRE

●CABINET PARTS LIST

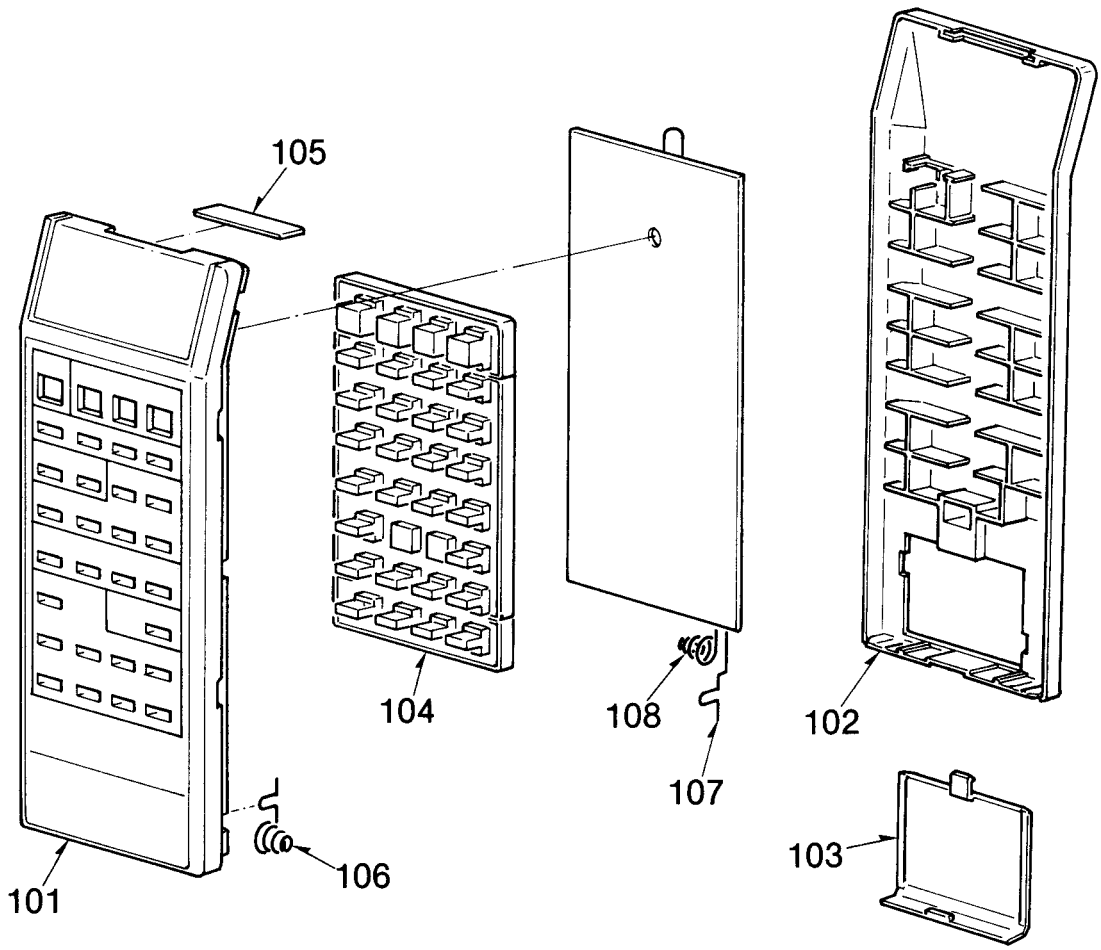
Ref. No.	Part No.	Description
CABINET AND CHASSIS		
1 (EB)	SGPTX930L-KB	REAR PANEL
1 (EF)	SGPTX930L-KF	REAR PANEL Ⓕ
1 (EH)	SGPTX930L-KH	REAR PANEL
1 (E)	SGP7350A	PANEL
1 (EK)	SGP7351A	PANEL
1 (PA, PE, XA)	SGP7352A	PANEL
1 (XL)	SGP7353A	PANEL
4	SHE181	HOLDER
8	SHG6385-2	RUBBER SPACER
12	SBC1029A	BUTTON
15	SBC989D	BUTTON
16	SBC989E	BUTTON
17	SBZ9104	BUTTON
19	SKL307	FOOT
21	SHR328	LEAD WIRE CLAMPER
22	XTBS3+8JFZ1	SCREW
23	XTB3+8G	SCREW
24	XTB3+20J	SCREW
25	SKC2060K16	CABINET
26	SNE2129-1	SCREW
27	SJT30843-V	CONNECTOR(8P)
27	SJT30940LX-V	CONNECTOR(9P)
30	SJT347	FUSE HOLDER
36	SHR9662	HOLDER
37	SUB267	ROD
39	XTB3+8JFZ	SCREW
40 ⚠ (E, EB, EF, EH)	SJS9225	AC OUTLET
41 (PA, PE, XA)	SJS9330A	AC OUTLET COVER
42	SJS9332A	AC OUTLET COVER
43 ⚠ (EK)	SJS9332B	AC OUTLET
45	SBC666-1	BUTTON
48	SJF3250	TERMINAL BOARD
49 (EK, E, EB, EF) (EH)	SJF8305N	TERMINAL PLATE
49 (PA, PE, XA) (XL)	SJF8402N	TERMINAL PLATE
51	SJS306	SOCKET
52 ⚠ (EK, E, EB, EF) (EH, PA, PE) (XA)	SJS9236	AC INLET
53 (XL)	SJS9237	SOCKET
54 ⚠ (PA, PE, XA)	SJS9330B	AC OUTLET
55	SGYTX930L-KE	PANEL
56	SKU11651-1	BOTTOM BOARD

■ EXPLODED VIEW



■ EXPLODED VIEW

●REMOTE CONTROL UNIT PARTS



●REMOTE CONTROL UNIT PARTS LIST

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC1	M50467018FP	INTEGRATED CIRCUIT
TRANSISTORS		
Q1	UN1231	TRANSISTOR
DIODES		
D1	LN66-S	L.E.D
COIL		
L1	ELEA101JA	COIL
OSCILLATOR		
X1	CSB420PB1	OSCILLATOR
RESISTORS		
R1	ERDS2TJ1R0	CARBON, 1Ω, 1/4W
CAPACITORS		
C1	ECKD1H471KB	CERAMIC, 470PF, 50V
C2	ECKD1H121KB	CERAMIC, 120PF, 50V
C3 (XL)	ECEA0GK101	ELECTROLYTIC, 100μF, 4V
MECHANISM PARTS		
101 (E, EH, EB, EF) (EK, XA, PA)	UR64VCS564	UPPER CABINET REMOTE CONTROLL
101 (PE)	UR64VCS607	UPPER CABINET REMOTE CONTROLL
102	UR64CS803A	LOWER CABINET
103	UR64EC804	BATTERY COVER
104 (E, EH, EB, EF) (EK, XA, PA) (PE)	UR64CT805C	RUBBER SWITCH
104 (XL)	UR64CT805H	RUBBER SWITCH
105	UR52SB327	PLATE
106	UR64TD374	BATTERY TERMINAL(COMMON)
107	UR64TD808	TERMINAL
108 (E, EH, EB, EF) (EK, XA, PA) (PE)	UR64TD809	TERMINAL
REMOTE CONTROL ASS'Y		
RM1 (E, EH, EB, EF) (EK, XA, PA) (PE)	EUR64753	REMOTE CONTROLLER
RM1 (XL)	EUR64761	REMOTE CONTROLLER

■ RESISTORS AND CAPACITORS

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Numbering System of Resistor

Example:

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1KΩ)
ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470Ω)

Numbering System of Capacitor

Example:

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001μF)	Tolerance	Peculiarity
ECEA	50	M	330	
Type	Voltage (50V)	Pecliarity	Value (33μF)	

- Capacity are in microfarads (μF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F).
- Resistance are in ohms (Ω), unless specified otherwise, 1K=1,000Ω, 1M=1,000kΩ

Resistor Type		Wattage		Tolerance
ERD	: Carbon	10 : 1/8W	12 : 1/2W	J : ±5%
ERG	: Metal Oxide	14 : 1/4W	25 : 1/4W	F : ±1%
ERQ	: Fuse Type Metal	1A : 1W	18 : 1/8W	G : ±2%
ERX	: Metal Film	S2 : 1/4W	S1 : 1/2W	J : ±5%
ERD L	: Carbon (chip)	2F : 1/4W	50 : 1/2W	K : ±10%
ERO K	: Metal Film (chip)	2A : 2W	3A : 3W	M : ±20%
ERC	: Solid	6G : 1/10W	8G : 1/8W	
ERF	: Incombustible Box-Shaped			
ERM	: Wire-Wound			
RRJ	: Cip Resistor			
ERJ	: Cip Resistor			

Capacitor Type		Voltage		Tolerance
ECE	: Electrolytic	0J : 6.3V	1A : 10V	K : ±10%
ECCD	: Ceramic	1C : 16V	1E : 25V	M : ±20%
ECKD	: Ceramic Capacitor	1H : 50V	1V : 35V	Z : +80 −20 %
ECQM	: Poyester	50 : 50V	05 : 50V	J : ±5%
ECQP	: Polypropylene	2H : 500V	2A : 100V	G : ±2%
ECG	: Ceramic	1 : 100V	1J : 63V	F : ±1%
ECEA N	: Non Polar Electrolytic	KC : 400V AC		C : ±0.25pF
QCU	: Ceramic (Chip Type)	KC : 125V AC (UL)		D : ±0.5pF
ECUX	: Ceramic (Chip Type)			
ECF	: Semiconductor			
EECW	: Liquid electrolyte double layer capacitor			

Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)		
R1	ERDS2TJ104	100K 1/4
R2	ERDS2TJ470	47 1/4
R3	ERDS2TJ104	100K 1/4
R4	ERDS2TJ824	820K 1/4
R5	ERDS2TJ391	390 1/4
R6	ERDS2TJ272	2.7K 1/4
R7	ERDS2TJ824	820K 1/4
R8	ERDS2TJ122	1.2K 1/4
R9	ERDS2TJ684	680K 1/4
R10	ERDS2TJ391	390 1/4
R101	ERDS2TJ103	10K 1/4
R102	ERDS2TJ103	10K 1/4
R104	ERDS2TJ102	1K 1/4
R105	ERDS2TJ561	560 1/4
R106	ERDS2TJ562	5.6K 1/4
R107	ERDS2TJ103	10K 1/4
R108	ERDS2TJ391	390 1/4
R201	ERDS2TJ222	2.2K 1/4
R202	ERDS2TJ824	820K 1/4
R203	ERDS2TJ122	1.2K 1/4
R204	ERDS2TJ824	820K 1/4
R205	ERDS2TJ391	390 1/4
R206	ERDS2TJ561	560 1/4
R207	ERDS2TJ822	8.2K 1/4
R208	ERDS2TJ102	1K 1/4
R209	ERDS2TJ471	470 1/4
R211	ERDS2TJ222	2.2K 1/4
R212	ERDS2TJ153	15K 1/4
R213	ERDS2TJ104	100K 1/4
R214	ERDS2TJ824	820K 1/4
R215	ERDS2TJ822	8.2K 1/4
R216	ERDS2TJ563	56K 1/4
R217	ERDS2TJ223	22K 1/4
R218	ERDS2TJ563	56K 1/4
R219	ERDS2TJ223	22K 1/4
R220	ERDS2TJ103	10K 1/4
R221	ERDS2TJ104	100K 1/4
R222	ERDS2TJ473	47K 1/4
R225	ERDS2TJ103	10K 1/4
R227	ERDS2TJ104	100K 1/4
R230	ERDS2TJ104	100K 1/4
R231	ERDS2TJ102	1K 1/4
R232	ERDS2TJ122	1.2K 1/4
R233	ERDS2TJ684	680K 1/4
R234	ERDS2TJ103	10K 1/4
R235	ERDS2TJ471	470 1/4
R237	ERDS2TJ391	390 1/4
R247	ERDS2TJ103	10K 1/4
R251	ERDS2TJ103	10K 1/4
R252	ERDS2TJ822	8.2K 1/4
R253	ERDS2TJ222	2.2K 1/4
R254	ERDS2TJ223	22K 1/4
R256	ERDS2TJ102	1K 1/4
R258	ERDS2TJ122	1.2K 1/4
R259	ERDS2TJ223	22K 1/4
R261	ERDS2TJ102	1K 1/4
R262	ERDS2TJ332	3.3K 1/4
R263	ERDS2TJ153	15K 1/4
R264	ERDS2TJ102	1K 1/4
R301	ERDS2TJ393	39K 1/4
R302	ERG1ANJ151	150 1
R303	ERDS2TJ223	22K 1/4
R304	ERDS2TJ223	22K 1/4
R305 (XL, PA, PE)	ERDS2TJ272	2.7K 1/4
R305 (E, EB, EF, EH) (XA)	ERDS2TJ332	3.3K 1/4
R306 (XL, PA, PE)	ERDS2TJ272	2.7K 1/4
R306 (E, EB, EF, EH) (XA)	ERDS2TJ332	3.3K 1/4
R307 (E, EB, EF, EH) (PA, PE, XA)	ERDS2TJ104	100K 1/4
R307 (XL)	ERDS2TJ562	5.6K 1/4
R308 (E, EB, EF, EH) (PA, PE, XA)	ERDS2TJ104	100K 1/4
R308	ERDS2TJ562	5.6K 1/4
(XL)		
R309	ERDS2TJ224	220K 1/4
R311	ERDS2TJ102	1K 1/4
R312	ERDS2TJ153	15K 1/4
R313	ERDS2TJ473	47K 1/4
R314	ERDS2TJ473	47K 1/4
R315	ERDS2TJ103	10K 1/4
R316	ERDS2TJ102	1K 1/4
R317	ERDS2TJ473	47K 1/4
R321	ERDS2TJ153	15K 1/4
(XL)		
R322	ERDS2TJ153	15K 1/4
(XL)		
R325	ERDS2TJ102	1K 1/4
(XL)		
R326	ERDS2TJ102	1K 1/4
(XL)		
R702	ERDS2TJ102	1K 1/4
R703	ERDS2TJ271	270 1/4
R704	ERDS2TJ102	1K 1/4
R704	ERDS2TJ272	2.7K 1/4
R705	ERDS2TJ271	270 1/4
R710	ERDS2TJ103	10K 1/4
R711	ERDS2TJ563	56K 1/4
R714 (E, EB, EF, EH) (PA, PE, XL)	ERDS2TJ562	5.6K 1/4
R716	ERDS2TJ101	100 1/4
R717	ERDS2TJ101	100 1/4
R721	ERDS2TJ561	560 1/4
R723	ERDS2TJ271	270 1/4
R725	ERDS2TJ103	10K 1/4
R915	ERDS2TJ821	820 1/4
R916	ERDS2TJ272	2.7K 1/4
R917	ERDS2TJ103	10K 1/4
R918	ERDS2TJ224	220K 1/4
R922	ERDS2TJ821	820 1/4
R923	ERDS2TJ104	100K 1/4
R924	ERDS2TJ332	3.3K 1/4
R925	ERDS2TJ393	39K 1/4
R930	ERDS2TJ104	100K 1/4
R931	ERDS2TJ104	100K 1/4

Ref. No.	Part No.	Value.
R932	ERDS2TJ104	100K 1/4
R933	ERDS2TJ104	100K 1/4
R937	ERDS2TJ104	100K 1/4
R940	ERDS2TJ473	47K 1/4
R941	ERDS2TJ473	47K 1/4
R942	ERDS2TJ103	10K 1/4
R944	ERDS2TJ223	22K 1/4
R946	ERDS2TJ101	100 1/4
R950	ERDS2TJ563	56K 1/4
R951	ERDS2TJ563	56K 1/4
R952	ERDS2TJ563	56K 1/4
R953	ERDS2TJ563	56K 1/4
R954	ERDS2TJ563	56K 1/4
R960	ERDS2TJ153	15K 1/4
R961	ERDS2TJ473	47K 1/4
R970 (XL)	ERDS2TJ103	10K 1/4
CAPACITORS(VALUE,VOLTAGE)		
C1	ECBT1H102KB	0.001 50
C2	RCBS1H3R3KCY	3.3P 50
C3	RCBS1H3R3KCY	3.3P 50
C4	RCBS1H3R3KCY	3.3P 50
C5	RCBS1H180JCY	18P 50
C6	RCBS1H181KBY	180P 50
C7	RCBS1H1R0MCY	1P 50
C8	ECCD1H060CC	6P 50
C9	ECBT1H102KB	0.001 50
C10	RCBS1H3R3KCY	3.3P 50
C11	RCBS1H180JCY	18P 50
C101	RCBS1H150JCY	15P 50
C102	RCBS1H150JCY	15P 50
C103	ECBT1H102KB	0.001 50
C104	RCBS1H181KBY	180P 50
C105	ECEA0JU101	100 6.3
C106	ECKD1H103PF	0.01 50
C107	ECKD1H103PF	0.01 50
C108	ECEA25M4R7	4.7 25
C109	ECEA1CU330	33 16
C110	ECBT1H102KB	0.001 50
C111	ECKD1H103PF	0.01 50
C112	ECKD1H103PF	0.01 50
C201	ECKD1H103PF	0.01 50
C202	ECKD1H103PF	0.01 50

Ref. No.	Part No.	Value.
C203	ECKD1H103PF	0.01 50
C204	RCBS1H181KBY	180P 50
C205	ECKD1H223PF	0.022 50
C206	RCBS1H150JCY	15P 50
C208	ECEA0JU101	100 6.3
C209	ECEA1EK4R7	4.7 25
C210	ECKD1H223PF	0.022 50
C211	ECKD1H223PF	0.022 50
C212	ECKD1H223PF	0.022 50
C213	ECCD1H101K	100P 50
C214	ECEA1CKS100	10 16
C215	ECKD1H103PF	0.01 50
C216	ECEA1HKR47	0.47 50
C217	ECEA1HK010	1 50
C220	ECEA1CKS100	10 16
C222	ECFTD473KXL	0.047 25
C225	RCBS1H180JCY	18P 50
C226	ECKD1H103PF	0.01 50
C227	ECEA1CKS100	10 16
C251	ECKD1H223PF	0.022 50
C252	ECEA1HK010	1 50
C253	ECKD1H223PF	0.022 50
C301	ECEA1CU101	100 16
C302	ECEA1HKR47	0.47 50
C303	ECEA1HK010	1 50
C304	ECEA1VK3R3	3.3 35
C305	ECEA1VK3R3	3.3 35
C306	ECEA1VK3R3	3.3 35
C307 (E, EB, EF, EH) (XA)	ECFTD153KXL	0.015 25
C307 (PA, PE)	ECFTD273KXL	0.027 25
C307 (XL)	ECFTD392KXL	0.0039 25
C308 (E, EB, EF, EH) (XA)	ECFTD153KXL	0.015 25
C308 (PA, PE)	ECFTD273KXL	0.027 25
C308 (XL)	ECFTD392KXL	0.0039 25
C309	ECKD1H103PF	0.01 50
C310	ECFTD473KXL	0.047 25

Ref. No.	Part No.	Value.
C311	ECQP1471JZ	470P 125
C312	ECEA1CKS100	10 16
C313 (XL)	ECBT1H102KB5	0.001 50
C313 (E, EB, EF, EH) (PA, PE, XA)	RCBS1H181KBY	180P 50
C314 (XL)	ECBT1H102KB5	0.001 50
C314 (E, EB, EF, EH) (PA, PE, XA)	RCBS1H181KBY	180P 50
C321 (XL)	ECEA1CKS100	10 16
C323 (XL)	ECFTD332KXL	0.0033 25
C324 (XL)	ECFTD332KXL	0.0033 25
C326	ECKD1H103PF	0.01 50
C327	ECBT1H102KB5	0.001 50
C701	ECEA1CU222	2200 16
C702	ECEA1EU102	1000 25
C704	ECBT1H102KB5	0.001 50
C705	ECEA1CU221	220 16
C706	ECEA1EK4R7	4.7 25
C707	ECKD1H103PF	0.01 50
C710	ECKD2H102ZF	0.001 500
C711	ECKD1H103PF	0.01 50
C715 ⚠ (E, EB, EF, EH) (PA, PE, XA)	ECKDKC103PF2	0.01 125
C716	ECEA1VU101	100 35
C717	ECKD2H102ZF	0.001 500
C718	ECKD1H103PF	0.01 50
C719	ECEA1VU101	100 35
C720	ECKD1H103PF	0.01 50
C725	ECEA1VK100B	10 35
C726	ECEA1VK3R3	3.3 35
C902	ECKD1H103PF	0.01 50
C912	ECEA0JS102	1000 6.3
C913	ECKD1H103PF	0.01 50
C914	ECEA0JS102	1000 6.3
C915	ECEA1HKR22	0.22 50
C916	ECCD1H101K	100P 50
C917	ECCD1H121K	120P 50
C927	ECBT1H102KB5	0.001 50

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